

# SCHOOLS BRIEF

## Investing in people

Governments in rich and poor countries alike have come to realise that human capital—the skills embodied in the workforce—matter as much for economic success as physical capital such as roads or machines. What role, if any, should government play in fostering investment of this kind?

IN RECENT years the term “human capital” has become almost dreadfully familiar. It entered into common usage among economists 30 years ago, thanks to Gary Becker, a Nobel laureate and professor of economics and sociology at the University of Chicago; he made it the title of a seminal book on the economics of education and training.

As Mr Becker points out in the third edition of “Human Capital” (published this month by the University of Chicago Press), the term was controversial in the beginning. Many said it treated people as slaves or machines. Now, the notion that people and firms invest in skills in much the same way that they invest in plant and machinery—ie, weighing the costs against the expected returns—seems too obvious to need stating.

Yet one of Mr Becker's most telling insights remains widely ignored. Discussion of policy towards education and training usually takes it for granted that markets fail in a particular way. Mr Becker showed otherwise.

Typically the argument goes as follows. When a firm pays for workers to be trained, the trainees become more productive not only in their present employ-

ment but also in any number of different jobs, with different employers. If a trained worker should be poached by another firm, the employer that paid for the training has merely subsidised a competitor. The fact that the firm cannot capture the benefits of its spending is a kind of market failure—and firms will spend less on training than they otherwise would. Hence, there is a case for public subsidy.

The argument has an impressive pedigree: as far back as 1920, A.C. Pigou, one of this century's most brilliant economic theorists, said that training was a classic case of “externality”. But the argument is wrong.

True, employers cannot directly capture the benefits of their spending on training—but the workers who receive the training can. Once equipped with new skills, they will be paid more than untrained workers, either by their present employer or by some other. So the benefits of training do accrue chiefly to one of the parties in the transaction; they are not sprayed over the economy at large.

As far as the decision to invest is concerned, it does not matter whether this capturing of benefits is done by employers or by

workers. If the benefits are captured by workers, Mr Becker showed, the market succeeds.

The market's answer is simple: workers undergoing an expensive training will be paid less, for the time being, than the value of their work to the firm. This came as a surprise to economists, but will strike trainee lawyers, accountants, architects—and anybody else receiving an education in highly marketable skills—as terribly obvious.

All such people gain skills that are not firm-specific; skills, in other words, that will be as valuable to other employers as they are to the firm that pays for the training. That being so, the market-failure argument suggests that little on-the-job training should take place. But lawyers, at least, are hardly in short supply. The reason is that workers, not employers, meet the cost—by accepting low wages during the period of training.

### Less than perfect

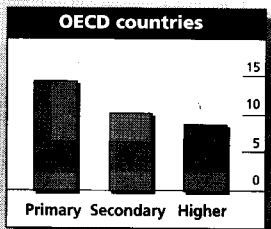
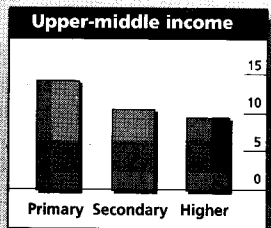
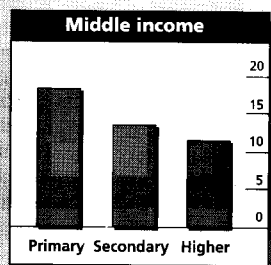
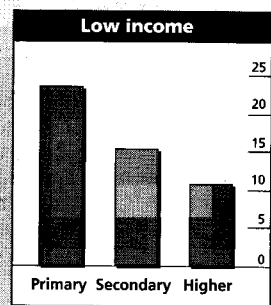
The standard market-failure argument for subsidising investment in human capital may be wrong, but this does not mean that market forces get everything right. Markets may fail in other, subtler ways. If they do, this will just as surely upset the calculations that society makes about how much to invest in training and education.

In principle, an economy should invest in human capital (as in any other kind of capital) up to the point where the rate of return yielded by the last bit of investment is just equal to the rate of return yielded by the best alternative use of the resources. It should invest, that is, up to the point where the marginal benefit equals the marginal cost. Please note: the idea that you can never have enough investment in human (or any other sort of) capital is nonsense. Investment is not free. You can have too much as well as too little.

To the private investor, weighing costs and benefits means investing so long as the rate of return exceeds the private discount rate (the cost of borrowing, plus an allowance for risk). For the economy as a whole, it means investing so long as the social return (which includes broader benefits to society, net of all costs) is greater than the social discount rate (which is the preference that society as a whole has for spending now rather than

### Primary goal

Social returns to investment in education, by countries' income per head, %

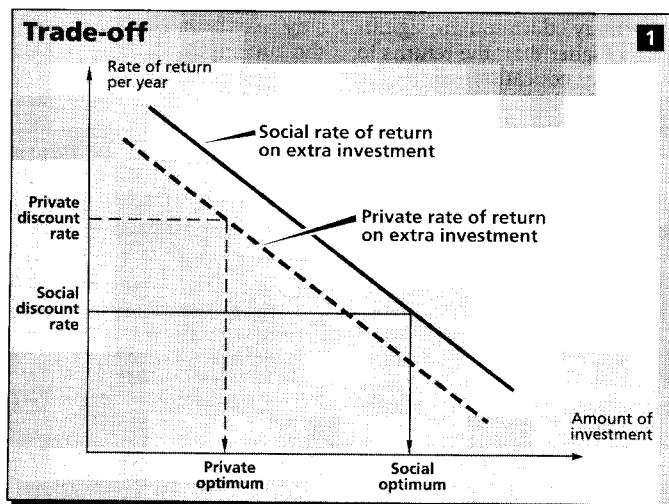


Source: World Bank

spending in the future). Plainly, these criteria are not the same.

Chart 1 plots private and social rates of return against the amount of investment undertaken\*. Both rates of return fall as investment increases (ie, the two lines slope downwards). This reflects the law of diminishing returns—a truth that economists take to be self-evident. Also, at every level of investment, the chart says that the social return is higher than the private return. There are five reasons why this

\* The chart and the explanation that follows are drawn from a forthcoming study, “Britain's Training Deficit”, edited by R. Layard, K. Mayhew and G. Owen for the Centre for Economic Performance at the London School of Economics.





might be true. In each case, the cause is indeed a sort of market failure—though not always an obvious one.

- A big **stock of skilled labour** may deliver economy-wide benefits over and above the private ones that spring from the fact that skilled labour is therefore cheaper to buy—the benefit, for instance, of greater flexibility in responding to economic change. (Michael Porter's best-selling study, "The Competitive Advantage of Nations", made much of this point.)

- Perhaps, for lack of information, would-be trainees simply **underestimate** the return to investing in skills.

- **Income taxes**, especially "progressive" ones, reduce the private (post-tax) return to training, relative to the social return. This is a good example of one form of government intervention creating a "market failure" that another form of intervention may then be called upon to remedy.

- If unskilled workers are more likely to be **unemployed** than skilled ones (as they are), then it follows that the social return to training will exceed the private return. Here, the economics gets complicated. The idea is that society gives up less (in terms of output) to train an extra worker than the typical trainee gives up (in terms of income).

- Another argument is too tricky to go into: if firms have a degree of **monopoly power** as buyers in the market for labour (and many do), it turns out that it will be profitable for them to meet some of the cost of their workers' training—but not as much as makes sense from society's point of view. In this roundabout way, a variant of Pigou's "poaching" argument can be valid, after all.

As well as assuming that the social return to investing in human capital exceeds the private return, chart 1 says that the private discount rate is higher than the social discount rate. This is plausible for two main reasons. Again, the underlying causes are varieties of market failure:

- In several ways, the **capital market** may be imperfect. For instance, borrowing to finance an investment in human capital may be difficult because would-be trainees lack collateral, or because the costs of administration and collection make such loans unattractive to private lenders. (These costs, it might be argued, would be lower if the lending

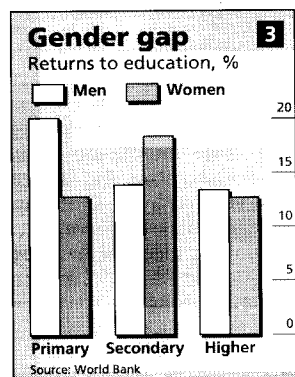
## Back to basics

IT IS often argued that, especially in poor countries, the returns to educating women are higher than the returns to educating men. Averaging across many industrial and developing countries, this is true: the return to female education is 12½%; the return to male education is 11%. But at different levels of education the picture is mixed (see chart 3). Male primary education scores better than female; male secondary education scores worse.

Overall, a shift of spending towards girls would seem to make sense. Third-world governments spend far less on them. (In Asia, girls receive only 60% of the investment in boys' education.) Educated women have fewer children, and tend to look

after them better—helpful in countries with excessive population growth and/or high rates of infant mortality.

Why do women receive less than their fair share of education? The answer may be a mixture of culture and economics. For instance, if parents expect daughters to join a new household when they marry, but expect their sons to remain at least partly attached, then educated boys will seem a better investment than educated girls.



were undertaken by the government, with subsequent debt-collection through the tax system.)

- Potential trainees may be unduly discouraged by the **risk** they would incur if they were to give up some of their income today in return for higher income (maybe) tomorrow. The idea is that private risks can be pooled, and thereby reduced: it follows that society as a whole should be less influenced by risk than individuals acting alone.

What is the net effect of all this? If, as in chart 1, (a) the private return to investing in human capital is lower than the social return and (b) the private discount rate is higher than the social discount rate, then there will be too little investment. The investment that is actually undertaken (the "private optimum") will be lower than makes sense for the whole economy (the "social optimum").

### Some evidence

Most empirical studies of investment in human capital have looked at education rather than on-the-job training. Quantitative research on in-firm training is difficult to do (spending on "training" is much harder to define than spending on "education"); comparative studies are few and far between and, by ne-

cessity, anecdotal.

However, the education studies are interesting in their own right, and shed some light on the broader issues. Chart 2 on the previous page comes from a survey of the literature by George Psacharopoulos, an economist at the World Bank<sup>1</sup>. His findings appear to confirm (thank heaven) the law of diminishing returns: the social returns to education fall, by and large, as national income (and aggregate spending on education) rises.

Judging by their education policies, most governments would be surprised by another of the study's findings: the returns to primary education are significantly higher than the returns to secondary education, which are themselves higher than the returns to higher education.

An important reason for this is expense: university education costs far more per student than secondary or primary education. Governments everywhere, but especially in the poorest developing countries (where the social return on primary education is 23%, against 11% for higher education) would be well-advised to shift their education budgets

<sup>1</sup> "Returns to Investment in Education," Policy Research Working Paper 1067, January 1993.

away from universities and towards primary schools.

Composition aside, chart 2 suggests that further spending on all forms of education may be warranted. To take the worst case—higher education in the rich OECD countries—the social return, at more than 8%, is probably higher than the social discount rate appropriate for those countries. Admittedly, that number is itself a matter of controversy—but many rich-country governments already use explicit or implicit discount rates of less than 8% to evaluate public-sector projects.

Another of Mr Psacharopoulos's findings may strike you as surprising. Studies that compared "academic or general" secondary education to "technical or vocational" secondary education found, on average, that returns to the first were higher—16% compared with 11%. Again, cost is the crucial thing: vocational education is far more expensive to provide than the academic sort.

Mr Psacharopoulos's figures, and the theoretical arguments discussed above, suggest that popular demands for a lot more public money to be spent on training may be overdone. The conviction that firms have no incentive to provide training (except training that is highly specific to the firm) is economically unfounded and, for good measure, refuted by the facts. Firms do train their workers—largely at the workers' expense (which, since the trainees later reap the rewards, is as it should be).

Economic theory does point to a variety of subtler reasons why firms may provide less than the socially optimal amount of training. Therefore, some subsidy may be called for; training the unemployed makes especially good sense, on social as well as economic grounds. However, within limited public budgets for investment in human capital, extra spending on primary education seems likely to offer the best value for money.

A reprint of all seven Schools Briefs on labour-market economics will be available from April 11th. To order, please send a cheque for \$11 to The Economist Newspaper Group, Inc., Reprints Dept., 111 West 57th Street, New York, NY 10019. Please add sales tax in CA, DC, IL, MA, NJ & VA. From Canada, add GST.